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NICKEL IN APRIL 2003

In April, reported domestic nickel consumption on a daily average basis was 7% greater than that of March, according to the U.S. Geological Survey. Average daily nickel consumption of cathode, pellets, briquets, and ferronickel for stainless steel was 58.2 metric tons per day (t/d)—4% less than the 60.9 t/d for March and 26% less than the 78.7 t/d for April 2002. Consumption of elemental nickel to make superalloys and corrosion-resistant nickel alloys increased by 13% and 14%, respectively, from the corresponding March levels. Sales to plating companies averaged 35.7 t/d, about 31% greater than the March sales figure of 27.3 t/d.

On April 30, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,420 metric tons (t)—12% more than the 1,270 t on March 31, but 10% less than the 1,570 t (revised) reported for yearend 2002. Stocks in London Metal Exchange (LME) warehouses worldwide totaled 22,230 t—9% less than the 24,348 t on March 31. Preliminary data collected by the International Nickel Study Group indicated that, at the end of March, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 95,900 t of nickel in primary products in stock, of which 66,600 t or 69% was Class I materials. Class I materials are refined products with a nickel (Ni) content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, oxide sinter, and East Asian utility nickel—products with a Ni content of less than 99%.

Percentages reported in the above paragraphs may not be verifiable owing to concealment of individual company proprietary data and late reporting of data.

The United States imported 37,100 t of primary nickel in the first quarter of 2003, 27% more than the 29,200 t for the corresponding quarter of 2002. Class I materials accounted for 90% of total primary imports received during the first quarter of 2003. Trade data for April will appear in a subsequent report.

Canada—Exploration and development update

[Part 1 of 2]

(Part 2 will appear in a subsequent issue.)

New discoveries spur nickel exploration in the Cape Smith Fold Belt of northern Quebec.—On July 16, 2003, Knight Resources Ltd. announced that its exploration geologists had discovered significant nickel sulfide mineralization in boulders and rubble at the West Raglan Project on the Ungava Peninsula. Much of the project area is still largely unexplored. The mineralized boulders and rubble were discovered near the base of a peridotite unit thought to be part of the western extension of the Raglan Horizon (Knight Resources Ltd., 2003). The Raglan Horizon hosts the pentlandite-chalcopyrite-rich deposit currently being mined by Falconbridge Limited near Katinniq.

In late 2002, the West Raglan project area comprised 1,646 contiguous claims covering about 68,000 hectares (or 168,000 acres) in the western part of the Cape Smith Fold Belt. At that time, Anglo American Exploration (Canada) Ltd. controlled the bulk of the claims. In January 2003, however, Knight Resources (then Knight Petroleum Corp.) agreed to help Anglo American explore the project area. Under the January agreement, Knight Resources can earn a 49% interest in the project by spending C$11.8 million on exploration and related work before December 31, 2006. After 2006, Anglo American can increase its interest to 70% from 51% by completing a bankable feasibility study of West Raglan (Knight Petroleum Corp., 2003).

In April 2003, Anglo American began an aerial electromagnetic and magnetic survey of the project area using proprietary advanced, deep penetrating technology. The company is in the process of following up the $400,000 airborne survey with ground geophysical surveys, geological mapping, and geochemical surveys.

The West Raglan peridotite unit may be related to a 3-kilometer (km)-long conductive trend identified by the airborne electromagnetic survey. Preliminary analysis of the electromagnetic survey indicated that the conductive anomaly lies 20 meters (m) to 100 m below the surface. Six grab samples—collected at several locations along a 1.6 km section of the 3-km trend—had nickel assays ranging from 1.13% Ni to 3.42% Ni. The copper content of the six samples ranged from 0.53% Cu to 2.91% Cu, while cobalt values were between 0.04% and 0.13% Co. Palladium ranged from 1.6 grams per ton (g/t) to 3.3 g/t. Platinum appears to be less abundant than

palladium in the discovery samples, with platinum values varying from 0.35 g/t to 0.84 g/t (Knight Resources Ltd., 2003). Donner Minerals Ltd. acquired a 29% controlling interest in Knight Resources in January 2003—a few months before the West Raglan discovery. Donner also is actively involved in joint exploration ventures elsewhere in Canada with Teck Cominco Ltd. and Falconbridge. (The Donner joint ventures in Labrador and Manitoba will be discussed in Part 2.)

The West Raglan project area now covers approximately 720 square kilometers (km^2) of the Cape Smith Belt. The eastern edge of the project area is about 80 km west of Falconbridge's Raglan Mine. In 2002, the Raglan Mine produced 24,636 t of Ni, 6,500 t of Cu, and 386 t of Co in sulfide concentrate (Falconbridge Limited, 2003a, p. 20). The concentrate was being shipped by sea to Quebec City and then railed to Falconbridge's smelter at Sudbury, Ontario, for conversion into matte. The Raglan deposit was discovered in the 1930s but was passed over on several occasions because of its extreme northern location. Falconbridge acquired the deposit in 1966, but did not decide to develop its resources until 1994. The Raglan Mine was commissioned in December 1997. At yearend 2002, Raglan had 18.1 million metric tons (Mt) of proven and probable reserves, averaging 2.88% Ni and 0.79% Cu (Falconbridge Limited, 2003a, p. 16).

Novawest and Cascadia team up to explore key Raglan area.—In July 2003, Novawest Resources Inc. and its partner, Cascadia International Resources Inc., began exploring 660 km^2 (about 255 square miles) in the central part of the Cape Smith Belt. The Novawest-Cascadia project area is situated between Falconbridge's holdings and the West Raglan area of Anglo American Exploration/Knight Resources. Novawest and Cascadia spent 7 years assembling the strategically situated holdings. Sampling, geophysical surveying, and drill site preparation are now underway in the Raglan Assemblage—the new name for the Novawest-Cascadia project area. The two partners are planning to spend more than C$12 million on their Raglan project over the next 3 years (Novawest Resources Inc., 2003).

Falconbridge begins finalizing development plans for its proposed Montcalm Mine in Ontario.—On July 21, 2003, Falconbridge announced that the company's board of directors had approved development of the Montcalm nickel-copper deposit in northern Ontario (Falconbridge Limited, 2003b, p. 6-7; Cumming, 2003). The Ontario Ministry of Environment, however, still has to approve several operating permits before full-scale development can proceed. Falconbridge is waiting for the Ministry to issue the necessary water treatment and discharge permits. The Canadian nickel producer has spent more than C$16 million on the project. Company officials estimate that the project's capital investment costs will be about C$142 million. The completed feasibility study indicates 5.1 Mt of resources averaging 1.46% Ni and 0.7% Cu (Falconbridge Limited, 2003c).

The proposed mine site is 70 km northwest of Timmins. The Dighem Syndicate discovered the Montcalm deposit in 1976. Outokumpu Oyj of Finland explored the deposit between 1993 and 1997 and invited Falconbridge to become a partner in 1999. In May 2001, Falconbridge purchased Outokumpu's interest in the property for C$14 million and became sole owner. Falconbridge has proposed discharging clean, treated mine water directly into the Groundhog River. The company is exploring two water-discharge options. The first option would require the construction and burial of a 15-km long pipeline. The pipeline would extend underground from the mine to an existing 44-hectare claim held by Falconbridge that divides the boundaries of the proposed Groundhog Provincial Waterway Park. The second option utilizes an existing 8-km-long naturalized drainage way and would involve a land exchange. Falconbridge would turn over 22 hectares of land associated with the pipeline option to the Crown[1]. In return, the mining company would receive drainage access rights through 2 hectares of the proposed Groundhog Park. The Crown would regain the drainage way rights when the mine is eventually closed.

Special trucks would haul the ore out of the proposed Montcalm Mine up along a ramp and out through a portal. The ore would then be trucked to the Kidd Creek smelter near Timmins for milling and concentrating. There would be no milling or processing of ore onsite. The only chemicals used at the mine would be those required to treat the discharge water (e.g., lime) and those associated with blasting or the operation of machinery.

References Cited

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Novawest Resources Inc., 2003, Raglan Ni-Cu-PGM-Co project drill site preparation underway: Vancouver, British Columbia, Canada, Novawest Resources Inc. press release, July 21, 3 p.

[1]In Canada, the Crown refers to the Sovereign or the powers and authority residing in the monarchy. The powers and authority of the Sovereign have been delegated to the Governor General of Canada.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE[1]

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
2002:					
April	5,070	879	280	6,230	23,800
May	4,730	722	81	5,530	29,300
June	5,150	873	254	6,280	35,600
July	5,210	730	266	6,200	41,800
August	5,230	843	230	6,310	48,100
September	5,130	754	59	5,950	54,000
October	5,330	750	62	6,140	60,200
November	4,830	632	58	5,520	65,700
December	4,750	505	53	5,310	71,000
January-December	59,600	9,080	2,270	71,000	XX
2003:					
January	5,180	529	75	5,780	5,780
February	4,820	390	23	5,230	11,000
March	4,720	653	42	5,410	16,400
April:					
Steel:					
Stainless and heat resisting	1,350	400	W .	1,750	7,730
Alloy (excludes stainless)	178	--	W	178	1,040
Superalloys	1,110	--	W	1,110	4,000
Copper-nickel alloys	W	--	--	W	W
Electric, magnetic, and expansion alloys	13	--	W	13	68
Other nickel & nickel alloys	W	--	W	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	1,070	--	--	1,070	3,670
Chemical and chemical uses	W	--	--	W	W
Other uses	1,460	--	46	1,500	5,530
Total reported	5,170 [2]	400	46	5,620	22,000
Total all companies (calc)[3]	XX	XX	XX	8,650	33,900
2003: January-April	19,900	1,970	185	22,000	XX
2002: January-April	19,300	3,270	1,210	23,800	XX

W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Of consumption, 4,190 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

[3]Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (65.01%) to apparent primary consumption for 2001.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS, BY FORM AND USE[1, 2]

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
2002:				
April	2,450 r	513	94	3,060 r
May	2,200 r	82	127	2,400 r
June	1,770 r	63	138	1,970 r
July	1,500 r	98	97	1,700 r
August	1,820 r	112	83	2,020 r
September	2,270 r	89	78	2,440 r
October	1,890 r	140	76	2,100 r
November	1,700 r	93	84	1,880 r
December	1,570 r	60	81	1,710 r
2003:				
January	1,380	100	44	1,520
February	1,560	54	34	1,650
March	1,270	148	43	1,460
April:				
Steel (stainless, heat resisting and alloy)	457	(3)	(3)	457
Nonferrous alloys[4]	938	(3)	(3)	938
Foundry (cast irons)	(3)	--	--	(3)
Chemical (catalysts, ceramics, plating salt, etc.) and unspecified uses	21	49	47	117
Total	1,420	49	47	1,510

rRevised. -- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Stocks held by companies that consume nickel in more than one end-use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustments.
[3]Included in the "Chemical and unspecified uses" category.
[4]Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE[1]

(Metric tons, nickel content)

	Consumption			Stocks		
Period	Ferrous scrap[2]	Nonferrous scrap[3]	Total scrap	Ferrous scrap[2]	Nonferrous scrap[3]	Total scrap
2002:						
April	5,140 r	732 r	5,870 r	2,980	116 r	3,100 r
May	4,970 r	617 r	5,590 r	3,690	107 r	3,790
June	6,330 r	547 r	6,880 r	3,300	107 r	3,410
July	5,900 r	713 r	6,610 r	3,280	90 r	3,370 r
August	6,060 r	662 r	6,720 r	3,110	113 r	3,220 r
September	4,770 r	606 r	5,370 r	3,400	120 r	3,520 r
October	5,170 r	660 r	5,830 r	3,540	104 r	3,640
November	4,590 r	506 r	5,100 r	3,240	104 r	3,350 r
December	3,870 r	641 r	4,510 r	3,210	101 r	3,310
January-December	61,600 r	8,070 r	69,700 r	XX	XX	XX
2003:						
January	4,760	582	5,340	3,420	107	3,530
February	4,080	633	4,710	3,080	96	3,180
March	6,470	513	6,990	2,930	108	3,040
April	5,310	594	5,910	3,210	93	3,310
2003: January-April	20,600	2,320	22,900	XX	XX	XX
2002: January-April	20,000	3,120	23,100	XX	XX	XX

rRevised. XX Not applicable.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Nickel content is calculated from an average nickel content and the reported gross weight of scrap.
[3]Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY[1]

(Metric tons, nickel content)[2]

Period and country of origin	Cathodes pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total[3]	Total year to date[4]	Wrought nickel
2002:										
March	5,760	813	679	54	315	275	277	8,180	31,000	30
April	6,220	551	983	--	221	349	274	8,590	39,600	116
May	6,600	590	1,240	14	221	477	298	9,450	49,100	53
June	8,950	391	1,160	238	174	460	228	11,600	60,700	43
July	11,800	627	1,080	214	367	874	225	15,200	75,900	69
August	7,750	603	1,790	127	152	762	171	11,400	87,200	72
September	13,000	566	1,570	2	160	641	194	16,200	103,000	85
October	5,140	609	1,010	11	230	564	183	7,740	111,000	106
November	6,560	684	991	27	181	627	222	9,300	120,000	51
December	6,970	512	750	16	225	530	312	9,310	130,000	70
January-December	97,200	6,970	12,300	1,230	3,030	6,080	2,860	130,000	XX	878
2003:										
January	5,950	928	605	10	341	322	223	8,380	8,380	55
February	7,060	954	916	8	323	424	269	9,960	18,300	115
March:										
Australia	1,080	80	--	--	--	--	--	1,160	3,530	--
Brazil	400	--	--	--	--	--	--	400	522	--
Canada	3,790	442	--	34	51	294	--	4,610	13,700	3
Colombia	--	--	641	--	--	2	--	643	888	--
Dominican Republic	--	--	655	--	--	1	--	656	1,730	--
Finland	140	410	--	--	--	--	61	611	1,650	--
France	137	--	--	--	149	--	81	367	873	29
Germany	(5)	3	--	--	57	--	29	89	239	40
Japan	--	11	2	--	7	--	60	80	171	10
Mexico	--	--	--	--	9	169	1	179	482	--
New Caledonia	--	--	--	--	--	--	--	--	100	--
Norway	1,570	--	--	--	--	--	--	1,570	3,120	--
Russia	9,460	167	--	--	--	--	--	9,630	10,700	--
South Africa	--	(5)	--	--	--	--	3	3	18	--
Sweden	--	7	--	--	--	2	--	9	20	(5)
United Kingdom	19	5	11	--	117	--	11	163	511	1
Venezuela	--	--	--	--	--	4	--	4	5	--
Zimbabwe	56	--	--	--	--	--	--	56	116	--
Other	760	9	--	--	30	4	63	866	1,110	10
Total	17,400	1,130	1,310	34	420	476	309	21,100	39,400	93
2003: January-March	30,400	3,020	2,830	52	1,080	1,220	803	39,400	XX	261
2002: January-March	24,200	1,840	1,750	582	1,100	793	757	31,000	XX	214

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemicals category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

[3]Excludes wrought nickel.

[4]May include revisions for prior months.

[5]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY[1]

(Metric tons, nickel content)[2]

Period and country of destination	Cathodes pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total[3]	Total year to date	Wrought nickel
2002:										
March	245	151	(4)	64	1,470	2,040	219	4,190	12,500	262
April	186	113	--	68	1,280	3,890	226	5,770	18,300	139
May	65	119	10	111	1,360	1,900	213	3,780	22,100	271
June	105	134	(4)	19	1,550	2,500	155	4,470	26,500	283
July	131	139	1	9	1,560	2,040	204	4,080	30,600	200
August	76	222	1	42	826	1,510	168	2,840	33,400	230
September	164	122	2	55	718	1,660	153	2,880	36,300	249
October	113	99	8	34	1,010	1,840	167	3,280	39,600	221
November	64	95	8	6	830	1,470	184	2,650	42,300	181
December	75	65	7	3	983	2,080	423	3,630	45,900	175
January-December	1,740	1,480	46	685	13,700	25,700	2,570	45,900	XX	2,570
2003:										
January	92	58	10	11	853	3,060	267	4,350	4,350	586
February	24	84	13	7	948	5,050	261	6,380	10,700	462
March:										
Australia	--	(4)	--	--	--	--	--	(4)	18	1
Belgium	--	4	--	--	37	2	--	43	135	25
Canada	1	39	--	6	555	312	103	1,020	3,120	18
China	--	--	5	--	--	581	8	594	1,450	2
Germany	--	6	--	--	61	3	1	71	130	13
India	--	2	--	--	--	26	2	30	94	--
Italy	1	1	--	(4)	--	(4)	(4)	2	462	20
Japan	2	4	--	2	7	32	19	66	349	19
Korea, Republic of	--	6	--	--	--	234	70	310	1,030	2
Mexico	18	4	--	--	--	(4)	5	27	201	44
Netherlands	--	4	(4)	--	--	110	--	114	398	(4)
South Africa	--	--	--	--	--	--	--	--	52	--
Spain	--	--	--	--	--	384	--	384	1,980	--
Sweden	--	--	--	--	33	--	--	33	132	--
Taiwan	--	1	--	--	--	2,260	(4)	2,260	5,210	8
United Kingdom	2	12	--	--	55	122	4	195	484	306
Other	22	30	--	5	22	1,080	31	1,190	1,840	171
Total	46	113	5	13	770	5,150	243	6,340	17,100	629
2003: January-March	162	255	28	31	2,570	13,300	771	17,100	XX	1,680
2002: January-March	760	368	10	337	3,570	6,790	682	12,500	XX	621

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemicals category includes chlorides (25%), sulfates, 22%, and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

[3]Excludes wrought nickel.

[4]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY[1]

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2002:									
March	256	207	407	293	(2)	327	159	1,650	4,710
April	390	229	531	254	(2)	233	151	1,790	6,500
May	179	248	456	289	1	337	162	1,670	8,170
June	232	293	401	286	15	511	122	1,860	10,000
July	133	259	624	361	31	124	196	1,730	11,800
August	170	217	360	356	34	180	161	1,480	13,200
September	64	153	412	207	35	243	131	1,250	14,500
October	180	150	400	212	28	106	117	1,190	15,700
November	231	279	324	348	28	194	149	1,550	17,200
December	170	192	510	353	21	147	153	1,550	18,800
January-December	2,540	2,640	5,230	3,520	194	2,850	1,810	18,800	XX
2003:									
January	54	252	427	332	(2)	133	91	1,290	XX
February	167	158	356	264	11	93	140	1,190	2,480
March:									
Australia	12	8	--	--	--	--	--	20	173
Belgium	21	--	(2)	--	--	--	1	22	49
Canada	--	(2)	3	--	--	4	2	9	29
China	2	--	1	--	--	--	17	20	67
France	--	--	154	2	--	9	1	166	350
Germany	5	70	226	233	--	72	6	612	1,410
Italy	--	105	3	--	--	(2)	1	109	313
Japan	3	--	1	--	--	42	2	48	100
Mexico	--	--	--	--	--	--	102	102	230
Netherlands	--	--	(2)	--	--	--	22	22	27
South Africa	39	--	--	--	--	--	--	39	78
Sweden	--	--	163	4	--	--	--	167	510
United Kingdom	48	25	5	61	(2)	20	3	162	573
Other	--	1	44	8	1	1	6	61	122
Total	130	209	600	308	1	148	163	1,560	4,040
2003: January-March	350	619	1,380	903	12	374	394	4,040	XX
2002: January-March	791	615	1,210	849	1	778	467	4,710	XX

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY[1]

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2002:									
March	884	626	178	505	11	197	653	3,050	8,180
April	618	451	96	476	12	204	278	2,130	10,300
May	862	495	99	638	32	136	297	2,560	12,900
June	1,070	393	142	567	8	127	363	2,670	15,500
July	437	518	94	392	8	144	307	1,900	17,400
August	951	527	142	545	15	128	426	2,730	20,200
September	788	568	174	733	4	133	333	2,730	22,900
October	290	507	146	717	3	187	320	2,170	25,100
November	739	418	174	546	10	147	295	2,330	27,400
December	415	316	78	302	14	115	426	1,660	29,100
January-December	8,720	6,020	1,520	6,590	169	1,770	4,290	29,100	XX
2003:									
January	729	375	138	236	12	231	192	1,910	XX
February	1,160	419	93	215	38	168	374	2,460	4,380
March:									
Australia	--	(2)	(2)	--	--	2	2	4	8
Belgium	--	57	1	7	--	--	1	66	203
Canada	10	41	36	25	8	41	60	221	758
France	20	139	11	94	(2)	1	3	268	720
Germany	35	62	4	14	(2)	(2)	2	117	1,560
India	--	6	(2)	1	--	3	5	15	54
Ireland	--	--	(2)	1	--	--	(2)	1	5
Italy	18	6	1	7	--	5	1	38	72
Japan	78	10	1	5	199	1	9	303	382
Korea, Republic of	1	--	(2)	9	(2)	2	11	23	114
Mexico	(2)	3	33	8	--	54	122	220	670
Netherlands	--	2	--	(2)	--	(2)	1	3	50
Singapore	1	5	4	--	(2)	4	4	18	27
Spain	4	--	(2)	--	--	--	3	7	53
Sweden	--	1	--	11	--	--	(2)	12	21
Switzerland	43	1	1	21	--	1	--	67	166
Taiwan	4	3	(2)	23	--	7	5	42	101
United Kingdom	9	217	6	74	(2)	3	2	311	700
Other	3	62	15	99	7	26	76	288	737
Total	226	615	113	399	214	150	307	2,020	6,400
2003: January-March	2,110	1,410	344	851	264	549	874	6,400	XX
2002: January-March	2,550	1,830	377	1,670	64	445	1,240	8,180	XX

XX Not applicable. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
April 2003:		
Stainless and heat resisting steels	68	32
Alloy steels	100	(1)
Superalloys	90	10
Copper-nickel alloys	100	(1)
Other nickel-base alloys	100	(1)

[1]Less than 1/2 unit.

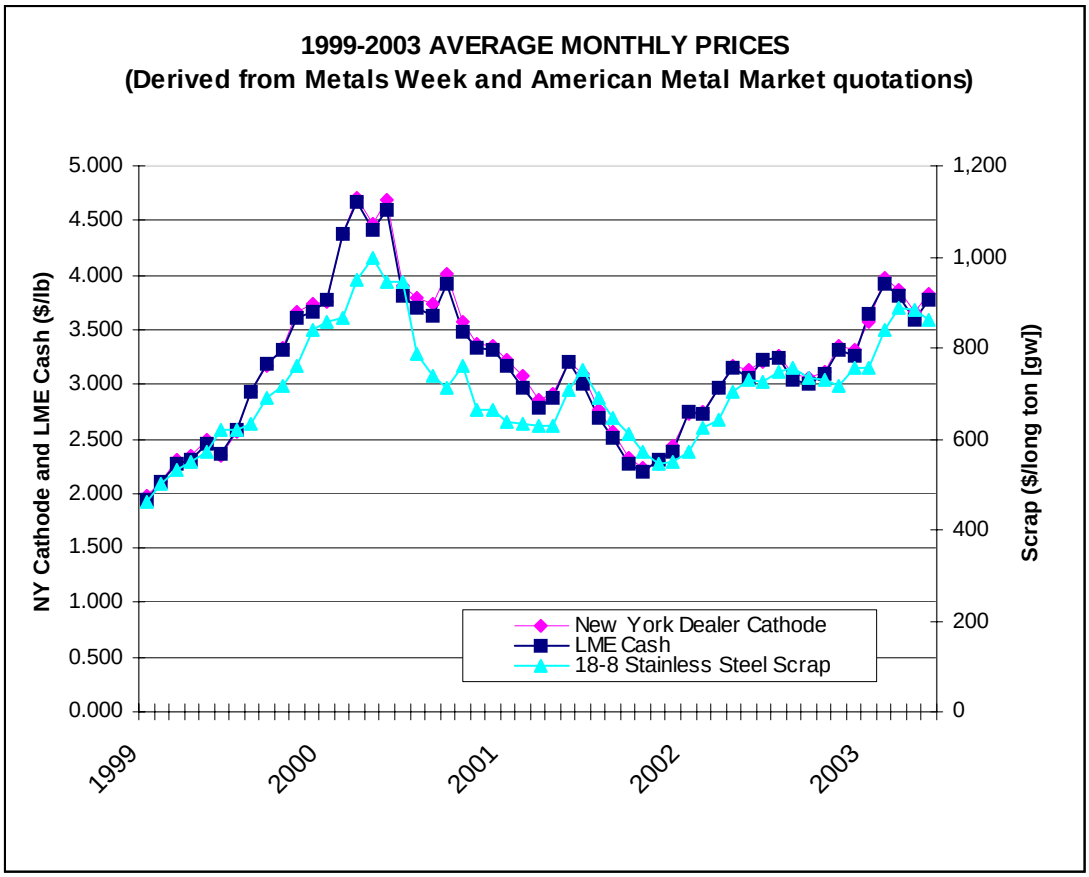
TABLE 9
NICKEL PRICES

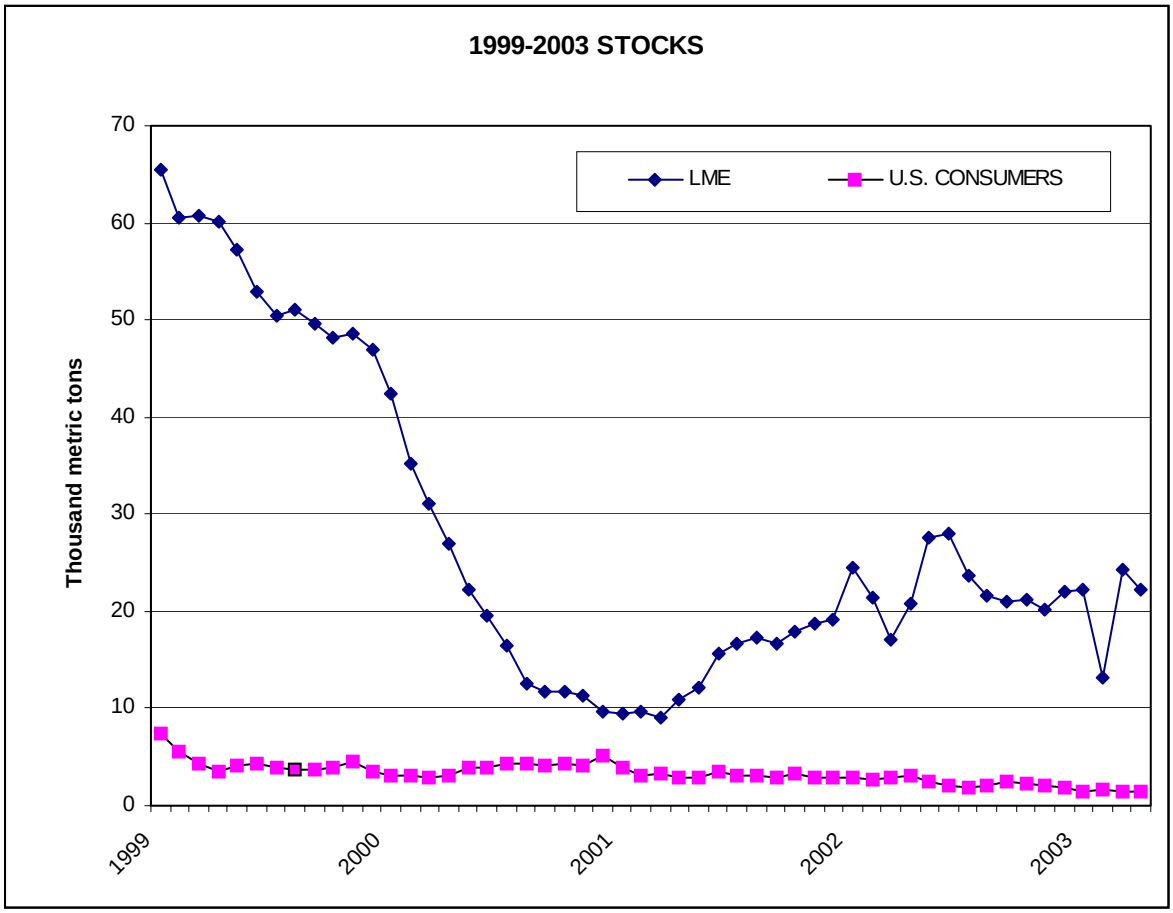
	Platts Metals Week				American Metal Market
Date	Cathode NY Dealer $/lb.	LME Cash $/t	LME Cash $/lb.	18/8 Stainless steel scrap Free market $/long ton (gw)	18/8 Stainless steel scrap Pittsburgh $/long ton (gw)
2002:					
Average for month of:					
April	3.163	6,958.214	3.156	XX	705
May	3.130	6,761.364	3.067	XX	731
June	3.213	7,119.861	3.230	XX	725
July	3.268	7,142.717	3.240	XX	748
August	3.094	6,717.143	3.047	XX	755
September	3.053	6,640.238	3.012	XX	733
October	3.118	6,804.457	3.086	XX	729
November	3.349	7,313.929	3.318	XX	716
December	3.308	7,193.158	3.263	XX	755
Yearly average	3.095	6,771.751	3.072	XX	703
2003:					
Average for week ending:					
April 4	3.65-3.73	7,859.500	3.565	885-895	880-890
April 11	3.63-3.78	7,855.000	3.563	885-895	880-890
April 18	3.69-3.83	8,068.750	3.660	885-895	880-890
April 25	3.65-3.83	7,885.000	3.577	860-880	880-890
May 2	3.70-3.82	7,985.500	3.622	835-850	880-890
May 9	3.80-3.84	8,145.625	3.695	829-840	850-860
May 16	3.80-4.68	8,197.500	3.718	829-840	850-860
May 23	3.87-4.68	8,363.000	3.793	829-840	850-860
May 30	3.96-4.16	8,762.500	3.975	840-860	850-860
Average for month of:					
January	3.580	8,026.020	3.641	XX	757
February	3.978	8,623.000	3.911	840	840
March	3.865	8,378.810	3.801	886	885
April	3.655	7,910.125	3.588	885	885
May	3.826	8,330.625	3.779	839	861

XX Not applicable.

NOTE

On February 6, 2003, Platts Metals Week began assessing a weekly North American Free Market 18-8 stainless steel scrap price. The price is being published as a range, in dollars per long ton (gross weight), reflecting the majority of spot business. Specifications are: material sold in bundles and solids, minimum nickel content of 7-9%, minimum chromium content of 17%, delivered plant, loaded on trucks or barges, minimum quantity 1,000 long tons, net-30 day standard payment terms.


1999-2003 AVERAGE MONTHLY PRICES
(Derived from Metals Week and American Metal Market quotations)
NY Cathode and LME Cash ($/lb)
Scrap ($/long ton [gw])
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
1,200
1,000
800
600
400
200
0
New York Dealer Cathode
LME Cash
18-8 Stainless Steel Scrap
1999
2000
2001
2002
2003


1999-2003 STOCKS
Thousand metric tons
70
60
50
40
30
20
10
0
LME
U.S. CONSUMERS
1999
2000
2001
2002
2003